

**COLORADO RIVER RECOVERY PROGRAM
FY-2004-2005 PROPOSED SCOPE OF WORK**

Project No.: 98c

Upper Yampa northern pike tagging

Lead Agencies: U. S. Fish and Wildlife Service
Colorado River Fishery Project

Colorado Division of Wildlife

Submitted by:

Sam Finney and Tim Modde
Vernal Colorado River Fish Project
U. S. Fish and Wildlife Service
Vernal, UT 84078
Phone: (435) 789-0354; Fax: (435) 789-4805
E-mail: sam_finney@fws.gov, tim_modde@fws.gov

Tom Nesler
Colorado Division of Wildlife
317 W. Prospect
Fort Collins, CO 80526
Phone: (970) 472-4384
E-mail: Tom.Nesler@state.co.us

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Category

- ☐ Ongoing project
- ☐ Ongoing-revised project
- ☒ Requested project
- ☐ Unsolicited proposal

Expected Funding Source

- ☒ Annual funds
- ☐ Capital Funds
- ☐ Other

I. Title of Proposal: Upper Yampa River northern pike tagging

II. Relationship to RIPRAP:

Green River Action Plan: Yampa and Little Snake rivers

- III.A.1.b Control northern pike.
- III.A.1.b(2) Reduce northern pike reproduction in the Yampa River.

III. Study Background and Rationale

Northern pike *Esox lucius* is an exotic predator that has become established in the Yampa River. Northern pike escaped from Elkhead Reservoir (a reservoir on Elkhead

Creek, which is a tributary to the Yampa River near Craig, Colorado) where they were originally stocked to provide sportfishing. Since escapement, they have established large, reproducing populations in the middle and upper Yampa River (Nesler 1995; personal communication with John Hawkins, CSU, and Richard Anderson, CDOW). Northern pike appear to be contributing to a negative impact on recruitment of fishes, particularly native fish in the Yampa River through predation (Anderson and Stewart 2003).

The Recovery Program has established an active program to control nonnative fishes in the main rivers of the upper basin to assist in recovery of the endangered fishes found there. To date, the Recovery Program has initiated nonnative reduction efforts for channel catfish and northern pike in the Yampa and Green rivers, and for small cyprinids in the Colorado and Green River drainages. In some cases, such as the Yampa River, northern pike have been removed from the main channel and stocked into off-channel impoundments to provide fishing opportunity for local anglers.

Concern has been expressed by sportfish managers for adequate evidence to justify the need to remove northern pike outside of critical habitat for endangered fish. The large population of northern pike in the upper Yampa River is suspected of being a source for continual movement of northern pike into the lower Yampa River and further downstream into the Green River where they coexist with three endangered fishes — Colorado pikeminnow *Ptychocheilus lucius*, razorback sucker *Xyrauchen texanus*, and humpback chub *Gila cypha*. However, the rate of dispersal is unknown. Information on the rate of emigration of northern pike from upstream reaches is important in determining whether ongoing removal efforts for northern pike in downstream, critical habitat reaches are being negated by recolonization from upstream populations. This evidence is important to determine whether removal in the upper Yampa River is warranted.

IV. Study Goals, Objectives, End Product:

Goal

Determine population size, structure, and movement of northern pike in the study reach.

Objectives

1. Estimate population size and structure of northern pike in the study reach through mark-recapture.
2. Determine movement of northern pike out of the study reach through tag returns.
3. Analyze data for mark-recapture population estimate of native fish.

End products: Annual report due 11/04; presentation of results at annual researchers meeting.

- V. Study area: Upper Yampa River (Approximate river miles 177.5-207.5, depending on access).

VI. Study Methods/Approach:

The main channel of the Yampa River from the outlet of Catamount Reservoir to the Highway 40 bridge east of Hayden will be electrofished using hard-bottom or raft electrofishing boats. The river channel will be electrofished three times during March and April. The entire study area will be divided into two-mile intervals for sampling, fish processing and data collection strata. On all sampling passes all northern pike will be double tagged with Passive Integrated Transponder (PIT) tags and Floy tags, measured, weighed, and released. Any native fish captured will be identified to species, and length (TL) and weight will be recorded. We will attempt to mark (right pelvic fin) all native fish on the first pass to facilitate obtaining a population estimate. However, this effort will be abandoned if it requires substantial effort that detracts from the main objective. All smallmouth bass captured will be double tagged with a white Floy tag and right pelvic fin clip, measured, weighed, and released. PIT tags will be used to enable tagging of juvenile life stages of northern pike when encountered, and reduce bias of results due to significant tag loss associated with Floy or other external tags. Data will be analyzed to estimate population size of northern pike, proportion and size structure of northern pike population that could be removed, movement of northern pike and status of the smallmouth bass and native fish populations in the study reach. Incidental mortalities will be refrigerated (when possible) and turned over to the Colorado Division of Wildlife.

All capture and length data on northern pike, smallmouth bass, and other species collected during the sampling effort will be turned over to the Colorado Division of Wildlife and added to the Recovery Program database. A brief summary report will be produced after sampling is completed and distributed through the Recovery Program's annual reporting process. In addition, results will be presented at the annual researchers meeting.

To be effective and to maintain public understanding and support, it will be critical to initiate an active and widespread public relations campaign. Public relations will be critical to the success of this project. We will assist the RIP staff, CDOW, and the Yampa Basin Partnership in their I&E efforts on nonnative removal projects.

VII. Task Description and Schedule

1. February through March: Ground truth the target area and seek access, launch and takeout permission from landowners.

2. March to April: Conduct 3 electrofishing passes through the 30-mile reach for mark-recapture sampling (no removal).
3. June: Analyze data for mark-recapture population estimate of northern pike population, movement of northern pike, and relative abundance of native fish population. Population estimates and recapture data for northern pike in the downstream removal projects will be integrated into these analyses if upper Yampa northern pike are recaptured in these downstream reaches.
4. July: Consolidate data and provide to Colorado Division of Wildlife and to Recovery Program database.
5. November 2004-2005: Prepare annual reports. Present results at the annual researchers meeting.

VIII. FY-2004 Work

Deliverables/Due Dates: Annual report 11/04

	<u>USFWS</u>	<u>CDOW</u>
<u>Task 1.</u>		
Labor		
Project Biologist (GS-9 at \$231/9 hr day for 11 days)	\$2,500	\$2,500
Travel	\$ <u>500</u>	\$ <u>500</u>
Subtotal	\$3,000	\$3,000

Task 2.

Labor		
Project Manager (GS-14 at \$463/8 hr day for 5 days)	\$ 2,320	\$ 2,320
Project Administration (GS-7 at \$169/8 hr day for 6 days)	\$ 1,075	\$ 1,075
Project Biologist (GS-9 at \$239/10 hr day for 12 days)	\$ 2,900	\$ 2,900
Biological Technicians (GS-5 at \$151/10 hr day for 29 days)	\$ <u>4,400</u>	\$ <u>4,400</u>
Labor Subtotal	\$10,695	\$10,695

Travel	\$ 2,610	\$ 2,610
Vehicles	\$ 900	\$ 900
Equipment (1,000 PIT tags at \$3.85 a piece)	\$ 3,850	

Subtotal	\$19,260	\$15,410
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Task 3

Labor

Project Biologist (GS-9 at \$203/8 hr day for 15 days)	\$ 3,000	\$ 3,000
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Subtotal	<u>\$ 3,000</u>	<u>\$ 3,000</u>
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Total per Agency	\$24,055	\$20,205
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Grand Total	\$44,260	
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FY-2005 Work

Deliverables/Due Dates: Annual report 12/04

	<u>USFWS</u>	<u>CDOW</u>
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Task 1.

Labor

Project Biologist (GS-9 at \$231/9 hr day for 11 days)	\$2,500	\$2,500
Travel	<u>\$ 500</u>	<u>\$ 500</u>
Subtotal	\$3,000	\$3,000

Task 2.

Labor

Project Manager (GS-14 at \$463/8 hr day for 6 days)	\$ 2,550	\$ 2,550
Project Administration (GS-7 at \$169/8 hr day for 6 days)	\$ 1,075	\$ 1,075
Project Biologist (GS-9 at \$239/10 hr day for 13 days)	\$ 3,025	\$ 3,025
Biological Technicians (GS-5 at \$151/10 hr day for 36 days)	<u>\$ 4,930</u>	<u>\$ 4,930</u>
Labor Subtotal	\$11,580	\$11,580

Travel	\$ 2,610	\$ 2,610
Vehicles	\$ 900	\$ 900
Equipment (1,000 PIT tags at \$3.85 a piece)	\$ 3,850	

Subtotal	\$19,260	\$15,410
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Task 3

Labor

Project Biologist (GS-9 at \$203/8 hr day for 15 days)	\$ 3,000	\$ 3,000
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Subtotal	<u>\$ 3,000</u>	<u>\$ 3,000</u>
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Total per Agency	\$24,055	\$20,205
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Grand Total	\$46,030	
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IX. Budget Summary

FY-2004 \$44,260

FY-2005 \$46,030

X. Reviewer

Frank Pfeifer, U. S. Fish and Wildlife Service

XI. References

Nesler, T.P. 1995. Interactions between endangered fishes and introduced game fishes in the Yampa River, Colorado, 1987-1991. Final Report, Federal Aid Project SE-3. Colorado Division of Wildlife, Fort Collins.

Anderson, R. and G. Stewart. 2003. Riverine fish flow investigation. Job Progress Report, Federal Aid Project F-289-R6. Colorado Division of Wildlife, Fort Collins.